OCT 23 2006

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-2 (Canceled).

Claim 3 (Currently Amended): A mechanism simulation method according to claim [[1]] 17, wherein the state transition model inputs a control signal from an external mechanism control software system.

Claim 4 (Currently Amended): A mechanism simulation method according to claim [[1]] 17, wherein the mechanism elements include a rotation angle or displacement of an actuator.

Claims 5-7 (Canceled).

Claim 8 (Currently Amended): A mechanism simulation method according to claim [[5]] 17, further comprising storing the generated table to a file.

Claim 9 (Currently Amended): A computer program stored in a computer readable medium storing a computer program for performing a mechanism simulation using both a hybrid dynamics simulation and a kinematic simulation, wherein in the hybrid simulation, a behavior of a mechanism is simulated using a hybrid model including a continuous system model and a state transition model, the hybrid model including a continuous system equation

having a plurality of variables ~~dynamics simulation, a behavior of a mechanism is simulated using a dynamics model including a continuous system equation having a plurality of variables~~, and in the kinematic simulation, a geometrical operation of the mechanism is simulated using a three-dimensional mechanism model including a plurality of mechanism elements, the program <u>when executed by a computer results in performing steps</u> comprising:

<u>reading data representing the variables of the hybrid model described in a hybrid model language;</u>

<u>reading data representing the mechanism elements of the three-dimensional mechanism model;</u>

<u>extracting, from the data representing the variables, a plurality of selective variables each of which enables to be associated with any one of the mechanism elements;</u>

<u>extracting, from the data representing the mechanism elements, a plurality of selective mechanism elements each of which enables to be associated with any one of the variables;</u>

<u>receiving a selection which is made by a user and is indicative of a combination of one of the plurality of selective variables and one of the plurality of selective mechanism elements, to generate a table that represents a correspondence between the variables and the mechanism elements based on the selection, wherein the one of the plurality of selective variables in the combination is selected by selecting a class of predefined hybrid model to which the selective variables belong, and selecting a member variable in the class;</u>

<u>calculating a value of one of the variables of the continuous system equation by a first simulator that executes the hybrid simulation;</u>

<u>identifying a mechanism element corresponding to a variable having the calculated value, referring to the table;</u>

transmitting, to a second simulator, information specifying the identified mechanism element and the calculated value of the variable; and

executing the kinematic simulation by the second simulator based on the information.

~~means for instructing a computer to calculate a value of one of the variables of the continuous system equation by a first simulator that executes the dynamics simulation;~~

~~means for instructing the computer to identify a mechanism element corresponding to a variable having the calculated value, referring to a table that represents a correspondence between the variables and the mechanism elements;~~

~~means for instructing the computer to transmit, to a second simulator, information specifying the identified mechanism element and the calculated value of the variable; and~~

~~means for instructing the computer to execute the kinematic simulation by the second simulator based on the information.~~

Claim 10 (Canceled).

Claim 11 (Currently Amended): A computer readable medium ~~program~~ according to claim 9, wherein the state transition model inputs a control signal from an external mechanism control software system.

Claim 12 (Currently Amended): A computer readable medium ~~program~~ according to claim 9, wherein the mechanism elements include a rotation angle or displacement of an actuator.

Claim 13 (Canceled).

Claim 14 (Canceled).

Claim 15 (Canceled).

Claim 16 (Currently Amended): A computer ~~program~~ readable medium according to claim [[13]] 9, further comprising ~~means for~~ instructing the computer to store the generated table to a file.

Claim 17 (New): A mechanism simulation method of performing a mechanism simulation using both a hybrid simulation and a kinematic simulation, wherein in the hybrid simulation, a behavior of a mechanism is simulated using a hybrid model including a continuous system model and a state transition model, and in the kinematic simulation, a geometrical operation of the mechanism is simulated using a three-dimensional mechanism model including a plurality of mechanism elements, the hybrid model including a continuous system equation having a plurality of variables, the method comprising:

reading data representing the variables of the hybrid model described in a hybrid model language;

reading data representing the mechanism elements of the three-dimensional mechanism model;

extracting, from the data representing the variables, a plurality of selective variables each of which enables to be associated with any one of the mechanism elements;

extracting, from the data representing the mechanism elements, a plurality of selective mechanism elements each of which enables to be associated with any one of the variables;

receiving a selection which is made by a user and is indicative of a combination of one of the plurality of selective variables and one of the plurality of selective mechanism elements, to generate a table that represents a correspondence between the variables and the mechanism elements based on the selection, wherein the one of the plurality of selective variables in the combination is selected by selecting a class of predefined hybrid model to which the selective variables belong, and selecting a member variable in the class;

calculating a value of one of the variables of the continuous system equation by a first simulator that executes the hybrid simulation;

identifying a mechanism element corresponding to a variable having the calculated value, referring to the table;

transmitting, to a second simulator, information specifying the identified mechanism element and the calculated value of the variable; and

executing the kinematic simulation by the second simulator based on the information.

Claim 18 (New): A mechanism simulation apparatus for performing a mechanism simulation using both a hybrid simulation and a kinematic simulation, wherein in the hybrid simulation, a behavior of a mechanism is simulated using a hybrid model including a continuous system model and a state transition model, and in the kinematic simulation, a geometrical operation of the mechanism is simulated using a three-dimensional mechanism model including a plurality of mechanism elements, the hybrid model including a continuous system equation having a plurality of variables, the apparatus comprising:

a reading device configured to read data representing the variables of the hybrid model described in a hybrid model language and data representing the mechanism elements of the three-dimensional mechanism model;

an extracting device configured to extract, from the data representing the variables, a plurality of selective variables each of which enables to be associated with any one of the mechanism elements, and to extract, from the data representing the mechanism elements, a plurality of selective mechanism elements each of which enables to be associated with any one of the variables;

a generating device configured to receive a selection which is made by a user and is indicative of a combination of one of the plurality of selective variables and one of the plurality of selective mechanism elements, to generate a table that represents a correspondence between the variables and the mechanism elements based on the selection, wherein the one of the plurality of selective variables in the combination is selected by selecting a class of predefined hybrid model to which the selective variables belong, and selecting a member variable in the class;

a first simulator configured to execute the hybrid simulation thereby to calculate a value of one of the variables of the continuous system equation;

an identifying device configured to identify a mechanism element corresponding to a variable having the calculated value, referring to the table; and

a second simulator configured to receive information specifying the identified mechanism element and the calculated value of the variable, and to execute the kinematic simulation based on the information.